

## **Knowledge and Practice of TB Patients on TB and its Treatment in Alamata District Tigray Region Northeast Ethiopia**

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### **Abstract**

**Background:** Tuberculosis (TB) leftovers the leading cause of death among a curable infectious disease, regardless of the availability of short-course therapy that can be both inexpensive and effective. The aim of the present study was to assess the level of knowledge about TB in clients who were initiating anti-TB drug treatment in Alamata District, northeast Ethiopia.

**Methods:** A cross-sectional study was conducted in TB patients who were initiating anti-TB drug treatment in the district. Study participants were interviewed using a structured questionnaire to evaluate level of knowledge about TB. Data was entered and cleared using SPSS version 16.

**Results:** A total of 200 study participants were interviewed, of whom 116 (58.0%) were male TB patients and 84 (42.0%) female TB patients. Among the study participants, 77.5% were new cases. Fifty percent of them were extra pulmonary TB (EPTB) case, 23.5% were smear-positive pulmonary TB (SPPTB) cases and 26.5% were smear-negative PTB (SNPTB) cases and. The overall knowledge about TB of the study participants was 36.5%.

**Conclusions:** There is significant knowledge breach in the study area among TB patients registered on treatment. Consolidation the awareness of TB patients using health education by health care providers on TB throughout the time of enrollment to treatment possibly will increase patients' knowledge thus upgrading in treatment outcomes.

**Keywords:** *Tuberculosis; Anti-TB Drug; Alamata District; Ethiopia*

### **Introduction**

Tuberculosis (TB) leftovers the leading cause of death among a curable infectious disease [1,2], regardless of the availability of short-course therapy that can be both inexpensive and effective. The number of people who fell ill with TB dropped to 8.8 million in 2010, after peaking at nine million in 2005; TB deaths fell to 1.4 million in 2010, after reaching 1.8 million in 2003; the TB death rate dropped 40% between 1990 and 2010, and all regions, except Africa, are on track to achieve a 50% decline in mortality by 2015; in 2009, 87% of patients treated were cured, with 46 million people successfully treated and seven million lives saved since 1995 [3].

According to the WHO Global TB report 2011, Ethiopia ranks 8<sup>th</sup> in the list of 22 high burden countries (HBCs), and 3<sup>rd</sup> in Africa, with an estimated prevalence of all forms of TB in 394 per 100,000 populations [4]. TB is the leading cause of morbidity, the third cause of hospital admission, and the second cause of death in Ethiopia [5].

Based on study conducted in Ethiopia showed that being female, illiterates and rural residents are more probable to have a low level of knowledge score. From the total study participant, 47.5% of them were not know TB transmission and they have had several beliefs, about transmission that could possibly generate ground for stigmatization of TB patients in the communities. These include eating and sleeping with a TB patient, touching a TB patient and inherited from a patient to a child [6].

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## Methods

### Study Area and population

The study was conducted in Alamata District of Tigray Regional State which is border of Amharic regional state. The District has one hospital, 6 health centers and 15 health posts, and all these institutions provide DOTS service. Data for this study was obtained from the attendees of one hospital and five health centers.

### Study design and participants

A cross-sectional study was used to assess the level of knowledge and practice of TB patients, who were attending their treatment at the health facilities of the District for at least one month. The study participants were those who were consented to be interviewed, age above 15 years, who had no communication problem and who had no obvious mental health problems were included as a study subject in the study. Patients who were not consented to participate in the study, prisoner patients, children below the age of 15 years and patients that have with obvious psychiatric problems were excluded from the study subjects.

### Method of data collection

Structured questionnaire was used to collect information on the level of knowledge about TB. The questionnaire includes demographic and socio-economic features, general information about TB. Patients' knowledge about TB was established based on the replies provided to the given questions by the patients throughout the interview.

### Description of Outcome variables

**Knowledge:** To produce the overall level of knowledge all correct response were added. Those who score equal and above the mean were considered as having high level of overall knowledge while those score below the mean were considered as having low levels of overall knowledge.

### Data processing and analysis

Data was entered, cleared and analyzed using SPSS version 16.0. Variables which were significantly associated with the probability of knowledge in the bivariate analysis were included in a multivariable logistic regression model to regulate their relative contributions in predicting the probability of knowledge about TB. Results were reported as statistically significant whenever p-value was < 0.05.

### Ethical approval

Ethical approval was obtained from Tigray Regional Health Bureau and authorization was obtained from Alamata District Health Office before starting the study. Written consent was obtained from patients who participate in the study before administering the questionnaire.

## Results

A total of 200 study participants were interviewed, of whom 116 (58.0%) were male TB patients and 84 (42.0%) female TB patients. Among the study participants, 77.5% were new cases. Fifty percent of them were extra pulmonary TB (EPTB) case, 23.5% were smear-positive pulmonary TB (SPPTB) cases and 26.5% were smear-negative PTB (SNPTB) cases. The overall knowledge about TB of the study participants was 36.5%. Forty-eight participants (24%) reported that they had no information on the causative agent of TB. Only 38 participants (19%) mentioned bacteria as a causative agent of TB, while the remaining respondents suggested dust (20%), stress/tired (16.5%), chill (13.5%) and smoking (7%) as the causative agent of TB. Majority (87.5%) knew that TB is a transmittable disease. One-hundred patients (50%) were able to mention at least two symptoms, with cough being the most identified symptom (54.5%). When participants were interviewed about the consequence of stopping anti-TB drugs, 73 (36.5%) were able to answer at least two consequences, with death is the most identified consequence, while 24 (12%) didn't know the consequence of stopping to anti-TB drug. When the study

participants were asked about the curability of the disease, 99% of the respondents reported that TB is a curable disease. But when they were asked about the duration of TB treatment, 84.5% reported the correct duration of TB treatment. Based on the response to the questions, 73 (36.5%) of the respondents were categorized as having high level of knowledge about TB. Table 1 shows the association of the socio-demographic characteristics of the participants with their knowledge about TB.

Characteristics	Possible values	Low knowledge score	High knowledge score	Odds Ratio (95% CI)	Adjusted odd ratio (95% CI)	p-value
Sex	Male	65 (56.0)	51 (44.0)	2.2 (1.2,4.1)	2.3 (1.1, 4.3)	.01
	Female	62 (73.8)	22 (26.7)	Reference	Reference	
Education	Illiterate	85 (70.2)	36 (29.8)	Reference	Reference	
	Read and write	12 (60)	8 (40.0)	1.574 (.6, 4.2)	1.5 (.5, 4.0)	.46
	primary (1-8)	16 (48.5)	17 (51.5)	2.509 (1.1,5.5)	2.3 (1.1, 5.)	.47
	Secondary and above	14 (53.8)	12 (46.2)	2.024 (.9, 4.8)	1.6 (.6, 4.1)	.33
Residence	Urban	24 (47.1)	27 (52.9)	2.5 (1.3, 4.8 )	2.6 (1.2, 5.2)	.01
	Rural	103 (69.1)	46 (30.9)	Reference	Reference	
Age	15-24	38 (65.5)	20 (34.5)	Reference	-	
	25-34	35 (64.8)	19 (35.2)	1.031 (.5, 2.3)	-	.94
	35-44	22 (59.5)	15 (40.5)	1.295 (.6, 3.0)	-	.55
	45+	32 (62.7)	19 (37.3)	1.128 (.5, 2.5)	-	.76

**Table 1:** Responses of patients to the questions on TB knowledge.

*Adjusted for education, age, occupation, health education, form of TB and treatment history.*

## Discussion

The investigation of this study is crucial to help plan, implement and evaluate Advocacy, communication and social mobilization (ACSM) work. Because it is used to gather information about what respondents know about TB, what they think about people with TB or about the health system response to TB, and what they actually do with regard to seeking care or taking other action related to TB. Good public understanding of tuberculosis (TB), its cause, signs and symptoms, mode of transmissions and treatment is considered to be important for prompt health care seeking, adherence to treatment and reduction of stigma associated with the disease [7].

Over all knowledge of the study participants were only 36.5%. In this study males respondents were more likely to have (aOR = 2.3, 95% CI: 1.1 - 4.3) high level of knowledgeable than females. This is comparable with previous study conducted in Tigray [6]. In this finding 19% of the study participants mentioned as bacteria is the causative agent of TB. In contrast to this a study conducted in Tigray indicated that 40.5% of the respondents mentioned bacteria as the main cause of pulmonary tuberculosis [6]. This variation may be due to study participants. Our study participants were TB patients while their study participants were community health workers. According our finding only 50% were able to mention at least two symptoms, with cough being the most identified symptom (54.5%). Unlike this finding majority of the study participants (78%) were able to mention at least two symptoms, with cough being the most identified symptom (89%) [8]. This difference may be due to geographical or study participant variation.

In the present study majority of participants (87.5%) knew that TB is a transmittable disease, which is similarly with a study conducted in Zambia (69%) [8]. However, it is different with a study conducted in Ethiopia [9], where only 36% of the respondents correctly knew the mode of transmission of TB". This difference may be due to geographical variation and study period of time. A good proportion

(84.5%) of our patients also knew the duration of anti-TB treatment. A similar study conducted in Ethiopia [9] showed that 73% of patients knew the duration of treatment.

In this study majority (57%) of the cases were EPTB, 27.2% were smear negative PTB and 13.8% smear positive PTB. This is incomparable with previous study which was conducted in Southern region of Ethiopia with 47% smear-positive PTB, 25% smear-negative PTB and 28% EPTB [10]. However, other study in Tigray reported 39.7% EPTB, 42.6% smear negative PTB and 17.7% smear-positive PTB [11].

The increase in EPTB could be attributed to factors such as lack of *Mycobacterium tuberculosis* culture and pathological services, professional difference and HIV-TB co-infection. Because Extra-pulmonary tuberculosis is more strongly HIV-related than pulmonary tuberculosis and at this time there is somewhat increased the number of physicians at health institution, this may increase in case identification of EPTB, because the diagnosis EPTB mainly relies on patients' clinical features, their response to treatment trials with broad spectrum antibiotics and physicians' decision to treat with a full course of anti-TB therapy. According a study conducted in reported that HIV infected people are also more likely than people who are not infected with HIV to have extra pulmonary TB. Forty to eighty percent of HIV infected people with TB have extra pulmonary disease, compared with 10-20% of people without HIV [12].

TB HIV confection rate of the study participants were 14.6%. This is comparable with WHO report 2015. From a total 9.6 million incident TB cases in 2014, 1.1 million - 1.3 million (11 - 13%) TB cases were among people living with HIV, with a best estimate of 1.2 million (12%). The proportion of TB cases co-infected with HIV was highest in countries in the African Region. Overall, 32% of TB cases were estimated to be co-infected with HIV in this region, which accounted for 74% of TB cases among people living with HIV worldwide. In parts of southern Africa, more than 50% of TB cases were co-infected with HIV [13].

But the low detection rate of smear PTB may be due to non-adherence to diagnostic algorithm, poor quality of sputum-microscopy and HIV-TB co-infection. Because of the limitations of current TB tests (AFB microscopy), it is even more difficult to diagnose TB in HIV positive individuals than to diagnose TB in people without HIV infection. Many people with HIV will have a false negative result from a TB sputum smear test because HIV reduce the immune system as a result they are not able to produce productive coughs. This can result in a large number of cases of active TB disease going undiagnosed [14,15]. This study has some potential limitations including lack of focus group discussion which might be used to triangulate the findings, lack of questions about MDR and XDR-TB. Besides, since the study did not include health posts and private health sectors, it is difficult to generalize the findings of this study to health posts and private health facilities in the study area.

## Conclusion

In conclusion, there is significant knowledge breach in the study area among TB patients registered on treatment. Consolidation the awareness of TB patients using health education by health care workers on TB throughout the time of enrollment to treatment possibly will increase patients' knowledge thus upgrading in treatment outcomes and overall TB control.

## Competing Interests

I have no competing interest.

## Author Contribution

GT designed the study, participated in data collection, analysis, interpretation, and write-up, drafted the manuscript and critically revised the manuscript.

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